ABSTRACT

A photomask blank comprising a multilayer film including at least four layers of different compositions, wherein the interface between the layers is moderately graded in composition; a phase shift mask blank comprising a phase shift film of at least two layers including a surface layer of a composition based on a zirconium silicide compound and a substrate adjacent layer of a composition based on a molybdenum silicide compound, and a further layer between one layer and another layer of a different composition, the further layer having a composition moderately graded from that of the one layer to that of the other layer; a phase shift mask blank comprising a phase shift film including a plurality of layers containing a metal and silicon in different compositional ratios which are stacked in such order that a layer having a higher etching rate is on the substrate side and a layer having a lower etching rate is on the surface side. The invention provides a photomask blank, typically a phase shift mask blank, which satisfies optical properties such as transmittance, reflectance and refractive index at an exposure wavelength of interest, and has an etched pattern with a minimal line edge roughness, and a photomask, typically a phase shift mask obtained therefrom.